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ABSTRACT

This report examines school physical education (PE) and how it can be an important part of the national physical activity promotion effort. Section 1 introduces the issue of youth activity and PE, noting that schools and universities must reintroduce daily, quality physical activity as a key component of comprehensive education. Section 2 discusses the current status of PE in schools, noting that few students receive daily PE. Section 3 examines activity levels of American youth, explaining that young children are relatively active, but by adolescence, activity levels decline. Section 4 discusses how much physical activity is enough, explaining that moderate levels can have significant health benefits, but varying activity patterns of young children, adolescents, and adults must be considered when developing physical activities. Section 5 discusses how physical activity relates to physical fitness in youth. The relatively low relationship between fitness and physical activity is a good reason for PE to emphasize physical activity rather than fitness. Section 6 discusses whether PE promotes physical activity in youth, concluding that well-conducted PE can generate increased activity levels during the school day and increased active living outside the school. Section 7 examines whether time spent in PE during school decreases learning in other areas. Evidence suggests that PE does not detract from learning in other areas. Section 8 discusses reasons for including regular PE in the curriculum. (Contains 43 references.) (SM)

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President's Council on Physical Fitness and Sports

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ED 437 351

Physical Activity Promotion and School Physical Education

A Note from the Editors

In 1956, President Eisenhower established the *President's Council on Youth Fitness*. The new cabinet level Council was particularly interested in the physical fitness and activity levels of children and adolescents. Though the Council (currently the *President's Council on Physical Fitness and Sports, PCPFS*) now serves as a catalyst to promote activity, fitness, sports and health for people of all ages, we thought it appropriate that we focus on children and youth in the final years of the century. Accordingly we asked several leading experts to provide us with three **PCPFS Digests** devoted to youth. The first of this series was published as the back-to-school issue in the fall of 1998 with Russ Pate serving as lead author focusing on the promotion of physical activity among youth with an emphasis on out-of-school programs. The second, in June 1999, was written by Tom Rowland, and focused on the activity levels of teens. Some strategies for promoting activity among this population were discussed. This year our back-to-school issue once again focuses on youth. Jim Morrow is the lead author of this final issue in our three part series on youth. Morrow and his colleagues focus their comments on school physical education and how it can be an important part of our national physical activity promotion effort. Morrow and co-authors were not asked to describe all of the benefits of regular physical education but to outline how physical education can contribute to the promotion of regular physical activity and its associated fitness and health benefits.

Introduction

Millions of children and youth return to school after a summer break. Upon their return to the classroom, they will begin anew their academic and extracurricular activities. Parents, teachers, administrators, and students focus on education as preparation for the future. Completed coursework prepares students for college and careers that will benefit children and adolescents throughout life. While many parents, students, and administrators turn their focus toward the traditional academic issues associated with schooling, they must not forget the significant health and physical benefits that derive from an excellent physical education program. As with cognitive information achieved in schooling, the student's psychomotor development must also be addressed. Development of the psychomotor domain can be important for the individual's health and well-being, as well as for that of the community. Fitness activities in the school setting have important individual, societal, and economic implications. It is often stated that a child's mind is a terrible thing to waste. This is true, but it is also terrible to waste the other 90% of the child's body.

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The Surgeon General's Report on Physical Activity and Health (Physical Activity and Health: A Report of the Surgeon General [SGR], 1996) clearly outlines the health benefits of physical activity for all ages. These benefits as summarized in the July 1996 issue of the **PCPFS Digest**, are now widely known and many national efforts have been undertaken to promote physical activity among all segments of the population. Because youth are less susceptible than adults to the chronic disease states associated with physical inactivity, the SGR has less direct evidence of health benefits for youth than for adults. Still experts point to the need for the development of physical activity patterns early in life and the school is an obvious place for the

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development of these patterns (Sallis & McKenzie1991). There is little doubt that children and youth can learn about and acquire beneficial lifestyle behaviors through quality physical education programs. Though national health goals call for daily physical education for all school children, many youth are not enrolled in any type of physical education program.

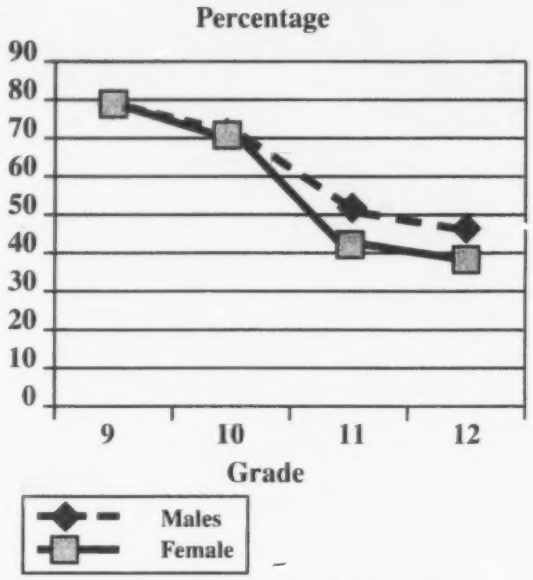
Donna E. Shalala (SGR, 1996) suggests, "schools and universities need to reintroduce daily, quality physical activity as a key component of a comprehensive education." The operative word is "*quality*." Surgeon General Dr. David Satcher called physical inactivity a "major epidemic" in the United States and stated, "I think we've made a serious error by not requiring physical education in grades K through 12....We are paying a tremendous price for this physical inactivity. People pay with pain and suffering and society pays with money and lost productivity" (NASPE, 1998). It is clear that the amount of physical education available to youth is decreasing in spite of the support among public health experts for sound school programs. In the following pages, answers to key questions about physical education and physical activity will be addressed.

What is the current status of physical education in the schools?

Though most youth experience physical education at some point in their school experience, few have daily physical education. Elementary and middle school aged youth are much more likely to participate in regular physical education than high school students, however, **daily** physical education is rare even for the lower grade levels. Children who receive physical education typically have one to three days per week of involvement.

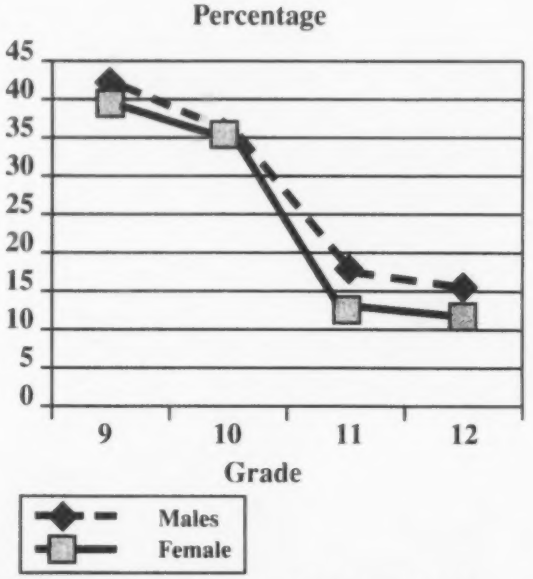
In high school, the likelihood of being enrolled in physical education decreases each year with only a few 12th graders likely to be enrolled (SGR, 1996). Physical education enrollment declines from over 80% of 9th grade boys and girls to 45% and 39% of 12th grade boys and girls, respectively. According to the *Surgeon General's Report* (1996) **overall** enrollment in daily physical education classes has declined among high school students from 42 percent in 1991 to 27 percent in 1997. Recent data (YRBS, 1998) suggest that only 48.8% of students in grades 9 through 12 are enrolled in physical education classes and only 27.4% attend physical education classes daily. It is encouraging that 73.9% of students enrolled in physical education classes self-report engaging in exercise for at least 20 minutes during the average class. Figures 1 and 2 illustrate data from the SGR (1996) showing physical education enrollment for high school students.

Figure 1. Percent of High School Students Enrolled in Physical Education*



*From Physical Activity and Health: A Report of the Surgeon General, 1996.

Figure 2. Percent of High School Students Who Attended Physical Education Daily*



*From Physical Activity and Health: A Report of the Surgeon General, 1996.

How active are American youth?

Young children are among the most active of all segments of the population. Though the assessment of physical activity during the elementary school years is difficult, there is ample evidence to indicate that children are among the most active age group in our population. By the teen years, activity levels begin to decline. In the June issue of the **PCPFS Digest**, Rowland (1999) documents the decline in physical activity through the teenage years and into adulthood. The decline is more dramatic among teenage girls than boys. At age 13 only about 6 to 7% of all teens report no physical activity while that number is nearly 1/4 of all girls and 1/5 of all boys by the age of 19. Pate referenced data from the 1997 Youth Risk Behavior Survey (YRBS, 1998) that indicate less than 2 in 3 students in grades 9 through 12 participate in vigorous physical activity and less than 1 in 5 participates in moderate physical activity. Looney and Plowman (1990), using data from the National Children and Youth Fitness Studies, found that passing rates for the FITNESSGRAM (CIAR, 1987) 1-mile run declined from over 80% in 8 year-old girls to less than 50% in 15 year-old girls. Inactive lifestyles are no doubt in part responsible for this decrease in fitness though care should be taken when interpreting the data because of the relatively low relationship of physical activity to physical fitness among teens (see later section). The activity trends in youth suggest that it is important to develop an appreciation for physical activity and develop lifestyle behaviors in children and youth that can be adopted and maintained into adulthood. As Rowland (1999) notes, "adolescence appears to be a risk factor for inactivity".

Several reports suggest that the critical time for adoption of physical activity behaviors is during adolescence. Some evidence supports the notion of "tracking" or the continuation of behaviors in adulthood that were initiated in childhood and adolescence (Beunen et al., 1992, 1994; Raitakari et al., 1994, Telama, Yang, Laakso, & Viikari, 1997; Vanreusel et al., 1993). This being the case, sound physical education programs would seem to provide excellent opportunities to introduce students to behaviors that impact them throughout life.

How much physical activity is enough for youth?

The Surgeon General's Report and the epidemiological research that preceded it indicate that moderate levels of activity can play a significant role in providing health benefits for adults. Corbin, Pangrazi, and Welk (1994) outlined the different models of activity including the lifetime physical activity model that notes the health benefits of moderate activity. For children they proposed a Children's Lifetime Physical Activity Model. That model provided the basis for the recent *Physical Activity Guidelines for Children* (Corbin & Pangrazi, 1998). These guidelines indicate the need for at least 60 minutes of physical activity and up to several hours per day for pre-adolescents. These guidelines note that children are typically active intermittently rather than continuously. Clear differences in activity patterns are evident for young children and adults. It is important that these differences be considered when developing physical activities for youth of different ages. A recent report (Health Education Authority, 1998) from Europe also notes the need for longer periods of activity among children as opposed to adults. Clearly the type and quantity of activity recommended for children differs from that for adolescents and adults.

Sallis and Patrick (1994) summarize international physical activity recommendations for adolescents indicating that they need daily moderate activity and more vigorous activity at least 20 minutes per day for a minimum of three days per week. In the September **PCPFS Digest,** Pate et al., (1998) provides an excellent review of the various activity guidelines for youth and recommendations for promoting physical activity in a variety of settings. Again, it is important that physical education teachers consider these guidelines when planning programs for adolescents. *Guidelines for School and Community Programs to Promote Lifelong Physical Activity among Young People* (1997) is an excellent resource for teachers, parents, and communities to use when developing physical activity programs that improve health and quality of life for school-age children.

How does physical activity relate to physical fitness in youth?

Professionals in physical education need to be aware of the effect of heredity on physical activity and fitness. Bouchard and Perusse (1994) reported that biological inheritance accounts for substantial components of physical activity behaviors and health-related fitness factors. Biological inheritance was reportedly associated with approximately 29% of habitual physical activity, 25% of cardiorespiratory fitness, 30% of muscular fitness, and 25% of percent body fat. While inheritance plays a role in the physical activity behaviors and health-related physical fitness, most of the variation in these variables can be modified for positive health outcomes. Thus, regular physical activity as a result of involvement in sound physical education programs can make an important contribution to physical fitness.

Nevertheless, it is important to realize that not all students will be equally successful even if exposed to regular physical activity. Meta-analysis evidence suggests pre-pubescent children do not achieve much aerobic benefit from endurance training (Payne & Morrow, 1993). Payne, et al. (1997) do

provide meta-analysis evidence of a strength training benefit in pre-pubescent children. Additionally, Morrow and Freedson (1994) have indicated that the typical relationship between physical activity and measured oxygen consumption in adolescence is less than r = .20. Thus, biology and physiology may set limits on the effectiveness of programs for specific individuals. It is unreasonable (and not supported by scientific literature) to expect every child to make large increases in fitness level as a result of regular physical activity that might result from a quality physical education program. Over a decade ago, Koslow (1988) called for a careful review of what physiological changes physical educators could expect to occur as a result of the typical physical education class and how "dedication" to a single fitness objective might hinder the overall effectiveness of a physical education program. Koslow (1988) also called for physical educators to examine their course objectives and work toward achieving those that could be attained. It is clear that regular physical activity has its benefits but fitness benefits vary widely from one child to another. It would be wrong to assume that a fit child is an active child and that children low in fitness are inactive.

For many years, physical educators focused their attention on "physical fitness." More recently, their attention has changed to encouraging "physical activity." Differentiating between physical activity (the "process") and physical fitness (the "outcome") is important. The relatively low relationship between fitness and physical activity is one good reason for physical education to focus on physical activity rather than on physical fitness.

Does physical education promote physical activity in youth?

In 1992, the National Association for Sport and Physical Education outlined the characteristics of a physically educated person (NASPE, 1992). A physically educated person is physically activity on a regular basis, knows the implications of and the benefits from involvement in physical activities, and values physical activity and its contribution to a healthy lifestyle. These and other outcomes have since been refined and provide the basis for national standards for quality physical education. These standards (NASPE, 1995) are developed by grade level and include "sample benchmarks" and "assessment examples."

Reports (Simons-Morton et al., 1993; Simons-Morton, et al. 1994; Simons-Morton et al., (1997) indicate that the amount of physical activity in physical education classes is often below the levels suggested in national health objectives (50% of class time). However, Simons-Morton et al., (1991) provide evidence that quality programs can result in increased physical activity in physical education classes.

Programs such as SPARK (Sallis et al., 1997) also have shown that physical education taught by qualified teachers increases the amount of activity children receive and educational interventions for classroom teachers can result in increased activity levels of students taught by trained teachers. Dale, Corbin, and Cuddihy (1998) have demonstrated that a conceptual physical education program focusing on lifestyle physical activity promotion can effectively reduce sedentary behaviors among adolescent years after program completion.

Rowland (1998) has suggested that young people may "compensate" for activity received during the school day by reducing their afterschool activity. Recent results (Dale, 1999) suggest that the amount of activity youth get in school physical education and recess does NOT reduce afterschool activity and DOES contribute to the overall amount of activity received during the day. The evidence suggests that well conducted physical education programs can result in increased activity levels during the school day as well as increased active living outside the school setting.

Does time spent in physical education in school decrease learning in other areas?

It has been suggested that the recent decreases in physical education requirements are a result of two principal factors. First, the demand for additional time for "academic" classes is a common reason for reducing time in physical education. Second, when financial crises exist physical education is often one of the first subjects to be deleted.

Evidence suggests that time spent in physical education DOES NOT decrease learning in other subjects. Youth who spend less time in other subjects to allow for regular physical education have been shown to do equally well or better in academic classes. Two of the primary studies to support this contention are the Three Rivers Study (Trudeau et al., 1998) and SPARK (Sallis et al., 1999). The health benefits from regular physical education are an important benefit of the regular school curriculum. The evidence suggests that the time spent to get these benefits does not detract from learning in other areas of the curriculum.

Are there other reasons (related to health) for including regular physical education in the curriculum?

YRBS (1998) data suggest that 60% of high school females and 23% of high school males are attempting to lose weight. Students report their most commonly used method when attempting to lose or control weight is exercise (51.5%), followed by dieting (30.4%). Integrating the teaching of nutrition and physical activity in school classes makes good

sense and could be an important contributor to decreasing the incidence of obesity and helping adolescents who are attempting to lose weight using ineffective techniques. The importance of weight related issues in school-age children was recently documented by Freedman et al., (1999). Energy balance is of particular importance because of the increase in body fatness documented in children and youth (Andersen et al., 1998; Beunen et al., 1994; Gidding et al., 1996). Table 1 presents important nutrition and health concerns for young people.

Table 1

Physical Activity, Nutrition and the Health of Young People*

Overweight and Obesity

1. The percentage of overweight children and adolescents has doubled in the last 30 years
2. About 12.5% of 5.3 million U. S. young people aged 6-17 are seriously overweight

Other Facts About Physical Activity and Nutrition

1. Only tobacco contributes to more deaths than diet and physical inactivity
2. Diet and inactivity are related to a variety of chronic conditions including heart disease, cancer, stroke, diabetes, hypertension, and osteoporosis
3. Early indicators of atherosclerosis start in childhood and adolescence
4. Obese children and adolescents are more likely to become obese adults and incur increased risk for disease

*From Nutrition and the Health of Young People, 1997.

Evidence suggests that quality physical education programs can assist in the adoption of important lifestyle behaviors. This is particularly important concerning weight control (Guo et al., 1994; Must et al., 1992) where adolescent weight has been found to be an excellent predictor of adult obesity. A sound physical education program, coupled with nutritional guidance, can help maintain caloric balance. The disease risk associated with increased body weight as an adolescent is greatest for those who are most overweight.

Summary

Physical education and physical activity can be an investment in the future. In the U.S., yearly health care costs associated with diseases related to a physically inactive lifestyle include cardiovascular diseases (>$270 billion), cancers (>$100 billion), diabetes (>$100 billion), obesity (>$100 billion), psychological health ($150 billion), arthritis (>$65 billion), and osteoporosis (>$10 billion). The development of physically active lifestyle behaviors can lower the risk of these chronic diseases and have a great impact on one's personal health, financial status, and the health care costs of a nation.

Based on the article by Pate et al., (1999), methods of impacting schools to increase quality physical education programs include having a district-level coordinator, requiring physical education through all grade levels, developing written curriculum and testing materials, employing certified specialists in physical education, and coordinating and collaborating with internal district colleagues and external agencies and colleagues. Implementing these actions can help improve the quality of physical education programs.

Quality programs can be offered through a variety of sources and not be limited to schools. A multidimensional approach to delivering quality cognitive, affective, and psychomotor experiences which includes teachers, school administrators, health care professionals, parents, community agencies, and the participants themselves can be most effective in changing lives. The key focus should be to impact the lifestyle behaviors of children and adolescents. Only as schools, communities, individuals, professional associations, and agencies work together can we impact the health and quality of life of children and adolescents in a way that can be expected to be adopted and maintained into adulthood. Chad, Humbert, and Jackson (1999) illustrate the effectiveness of a program designed to create awareness, support, and influence decision makers with regard to the adoption of quality daily physical education programs. These authors concluded that the program "... resulted in an increased awareness and support of daily physical education among key stakeholders... however, had limited influence on school physical education programming... [and] if physical education is to play an integral role in health promotion, it is imperative that a population approach be undertaken... which is aimed at preparing children for a lifetime of regular physical activity." (p. 63)

With all of the evidence supporting physical activity and its relationship to health and the quality of life, one must ponder why physical education enrollment is decreasing. The reasons are many: financial concerns in school districts, back

to "basics" movements, failure for professionals to influence decision makers, and failure to successfully disseminate the important messages about physical activity to decision makers. The National Coalition for Promoting Physical Activity (NCPPA, Indianapolis, IN) consists of approximately 150 organizations with interest in promoting messages about the importance of physical activity. The National Association for Sport and Physical Education (NASPE, Reston, VA) has developed "SPEAK II" which contains similar messages and information. These promotional activities, including advocacy, can have an impact on schools. However, individual schoolteachers, administrators, and staff must play a role in working within their local districts and schools to make a difference. All need to contribute to promotion of activities and programs.

In summary, scientific literature and professional thought clearly indicate a relationship between physical activity and quality of life. Children and adolescents are at a critical developmental period for the adoption of significant lifestyle behaviors (e.g., physical activity, nutrition, and tobacco use). Rowland (1999) refers to adolescence as a "risk factor" for physical inactivity. The importance of physical and health education cannot be ignored during this unique instructional opportunity. We must employ multidimensional approaches involving a variety of constituencies if we are to impact schools and professionals so that effective physical education and non-school based interventions are adopted during this important phase of life.

Our Nation's political leaders have identified the important role that physical activity and physical education plays in quality of life. The recent bipartisan *Physical Education for Progress (PEP) Act* introduced into the U. S. Senate calls for the appropriation of $400 million over five years to provide grant support for school districts to initiate, expand, and improve physical education programs. This is an excellent example of national interest in physical education and physical activity. The *PEP Act* must receive wide public support if it is to pass. The scientific and professional literature supports physical activity and quality physical education; the time is right for us to act and impact students for a lifetime. Perhaps Herophilus, the father of scientific anatomy, in 300 B.C. summed the issue best when he stated, "Without health and fitness, wealth is without value, knowledge is useless, art cannot become manifest, and music cannot be played." Collectively, we can develop, maintain, and offer programs that will help students adopt and maintain healthy lifestyles that will benefit individuals and society.

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The President's Council on Physical Fitness and Sports

The President's Council on Physical Fitness and Sports (PCPFS) was established in 1956 through an Executive Order by President Dwight D. Eisenhower as part of a national campaign to help shape up America's younger generation. Today, the PCPFS serves as an advisory council to the President and Secretary of the Department of Health & Human Services on matters involving physical activity, fitness and sports to enhance and improve the health of Americans of all ages.

The PCPFS enlists the active support and assistance of individual citizens, civic groups, private enterprise, and voluntary organizations to promote and improve the physical activity and fitness of all Americans and to inform the public of the important link which exists between regular activity and good health.

Twenty (20) individuals from the sports, fitness and health fields are appointed by the President to serve as members of the Council. They are:

Lee Haney, Chairman
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Ralph Boston, Knoxville, TN
Don Casey, East Rutherford, NJ
Timothy Finchem, Ponte Vedra Beach, FL
Rockne Freitas, Ed.D., Honolulu, HI
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Calvin Hill, Great Falls, VA
Jim Kelly, Buffalo, NY
Judith Pinero Kieffer, Los Angeles, CA
Deborah Slaner Larkin, Pelham, NY
Albert Mead III, Atlanta, GA
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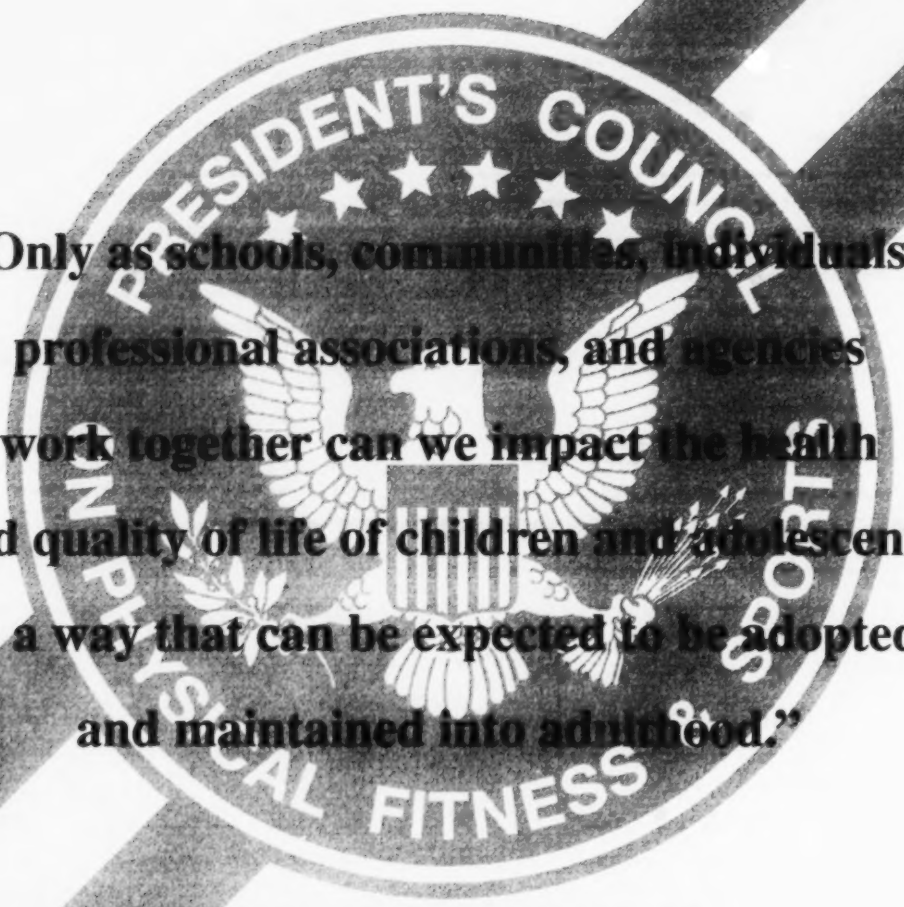

"Only as schools, communities, individuals, professional associations, and agencies work together can we impact the health and quality of life of children and adolescents in a way that can be expected to be adopted and maintained into adulthood."

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